Fermilab
Technical Division, D&TD
Systems Development & Support Group

DRAFT

VAX Conventional Magnet Data Transfer Plan

Introduction

The purpose of this plan is to propose steps to move conventional magnet measurement data and related information from MDTF00, a DEC VAX computer, to Sun sparc servers running UNIX. At the completion of these tasks, the data will be stored in a Sybase database and the related information will, primarily, reside on disk in ASCII files. Selected portions of both will be "published" on the Web. This plan is being proposed due to the upcoming decommissioning of the VAX. The VAX computer system is old, support at the laboratory is officially non-existent, and the Development and Test Department intends to decommission its VAX's at some future date. Thus the conventional magnet data needs to be relocated to a computer architecture with current support. As a side benefit, access to the data will be improved by putting it into a more widely supported system accessible with more powerful tools.

Completion of tasks outlined in this plan will require collaboration between physicists and members of the Software Development and Support Group (SDSG). Persons with knowledge of the magnets and their associated measurements (physicists) will identify the data and related information to be transferred. The physicists will collaborate with software professionals from the SDSG in the design and implementation of the destination structures: database tables, file directories, and Web pages. Development and maintenance of any non-standard tools needed for the transfer will be the responsibility of SDGS. Documentation will come from both groups of people. Experience will dictate the correct mixture of talent required to actually move the information, but it can be expected to include physicists, software professionals, and data clerks.

Classes of information

Already Moved: Some material has already been moved from MDTF00 to a Web site. All known NMR data on P-Bar magnets, originally stored in ASCII files, is available at http://tdpc01.fnal.gov/pbar-magnets/nmr/refmenu.htm. The original ASCII reports on almost all the quadrupoles are available at http://tdpc01.fnal.gov/pbar-magnets/VAXQuadReports/refmenu.htm. The information can either remain where it is or move to another platform. The code and procedures that were used to produce the original reports should be preserved.

Raw: Any raw data that remains on the MDTF disks should be abandoned after the reduced and analyzed data is processed.

Reduced: A large quantity of reduced data currently resides in Datatrieve domains (tables) on MDTF00, sometimes multiple measurements in a single file, sometimes only one measurement in a file. Tables have been defined and created in Sybase to receive that data. Working programs exist that copy the "reduced" measurement data, flatcoil and harmonics, directly from the VAX into existing Sybase tables. The harmonics system has been more thoroughly and more recently exercised than the flatcoil system. Numerous issues required attention when the harmonics system was exercised in March 1999. We should to expect that a certain amount of similar work will be needed for the flatcoil system, but we can hope that

the issues can be dealt with more expeditiously given the experience. (Note: we will not attempt to preserve the raw data.)

Analyzed: Data for most P-Bar quadrupole and dipole magnets were subjected to a final analysis stage of processing which produced a binary output similar in structure to the reduced data files. The three analyses treated the dipole flatcoil data, quadrupole flatcoil data, and quadrupole harmonics data. Loose ends of these analyses should be tied up, processing the remaining few magnets. Sybase tables (two per analysis type) should be designed to capture the data, and the data should be transferred.

Other Datatrieve: Other information, both data and system configuration information, is stored in a multitude of Datatrieve tables. It may be worth the effort to develop a semi-automatic system to replicate the Datatrieve table design in Sybase and move the data, relieving the tedium of defining the new Sybase tables. There may even be a commercial product to support this operation.

Steeltest: The summary data for the different coils of steel are in Datatrieve files and subject to the same treatment as above. Some, at least, of the raw data (B-H curves) is still available in, at least, one or two formats. These curves may have some enduring value. If so, preserving the data will be most effectively done by converting the binary data to ASCII format and copying to a Unix system. At this time I do not see a strong motivation to move this raw data to Sybase.

Other: A large number of ASCII documents and directories full of source code should be preserved intact, the documents available on the Web. Some documents are in DEC Runoff format and should be processed before presentation.

Plan generalities

As indicated above, each of the kinds of data suggests a different approach. The plan for each kind is divided into phases. An estimate for the total time effort (the time required to complete all of the tasks) follows each phase. This is not he calendar time. Concurrency and percentage of time spent on each task will affect the calendar time necessary to complete each task. Obviously some tasks cannot be started until others are completed. However, it should be noted that in some instances tasks can be occurring concurrently so that there will be some time overlap. The physicists who will be needed for this effort are typically able to focus five per cent of their time on this kind of effort.

If the plan tags a task with "[external support]", it indicates that the effort to complete the task will come from outside the Software Development and Support Group (typically a physicist). If the plan tags a task with "[with external support]", it means that the Software Development and Support Group will be working with others from outside the group (again, typically a physicist).

Proposal

Already Moved Data

Phase 1 . . . . . Review situation

1. Review the current presentation of information - [with external support]

Time effort estimate: 1 weeks

Phase 2 . . . . . Improve situation

1. Improve if desired - [with external support]

Time effort estimate: 3 weeks

Reduced Data

Phase 1 . . . . . Identify data files to transfer

2. Restore backed-up reduced data files from save set [external support]
3. Find all other directories with reduced data files [external support]
4. Determine appropriate wildcards to specify file names and magnet names to transfer [external support]
5. Document as appropriate - [with external support]

Time effort estimate: 2 weeks

Phase 2 . . . . . Harmonics check out

1. Review harmonics tables for reduced data in Sybase [with external support]
2. Review transfer program (VAX FORTRAN, Open Client) - [with external support]
3. Transfer a few measurements of each type to verify operation - [with external support]
4. Review documentation and update as appropriate - [with external support]

Time effort estimate: 2 week

Phase 3 . . . . . Flatcoil check out

1. Review flatcoil tables for reduced data in Sybase [with external support]
2. Review documentation and bring to revision level of harmonics - [with external support]
3. Bring program to revision level of harmonics (VAX FORTRAN, Open Client) - [with external support]
4. Transfer a few measurements of each type to verify operation - [with external support]
5. Review documentation and update as appropriate - [with external support]

Time effort estimate: 4 week

Phase 4 . . . . . Load the data into Sybase

1. Load harmonics data into the Sybase tables
2. Load flatcoil data into the Sybase tables

Time effort estimate: 3 weeks

Phase 5 . . . . . .Provide Web access to data

1. Define and document requirements - [with external support]
2. Implement

Time effort estimate: 13 weeks

Analyzed Data

Phase 1 . . . . . Process incomplete magnets

1. Identify magnets missing data in HARMANA, FLATANA, and DIPLANA [external support]
2. Find data processing procedures and code [external support]
3. Determine why magnets are missing [external support]
4. Process missing magnets where possible [external support]

Time effort estimate: 4 weeks

Phase 2 . . . . . Define Sybase tables

1. Define Sybase tables for HARMANA data - [with external support]
2. Define Sybase tables for FLATANA data - [with external support]
3. Define Sybase tables for DIPLANA data - [with external support]
4. Document new tables - [with external support]

Time effort estimate: 1 week

Phase 3 . . . . . Transfer data

1. Extract data from Datatrieve to ASCII files, two per type [external support]
2. Copy data to Unix system
3. Write script or programs to load Sybase tables - [with external support]
4. Load Sybase tables

Time effort estimate: 4 week

Phase 4 . . . . . .Provide Web access to data

1. Define and document requirements - [with external support]
2. Implement

Time effort estimate: 13 weeks

Other Datatrieve Data

Phase 1 . . . . . Identify tables to be transferred

1. Identify Datatrieve tables to transfer - [external support]
2. For each table determine whether any indexing is desirable - [with external support]

Time effort estimate: 2 weeks

Phase 2 . . . . . .Develop migration tools and procedures

1. Develop procedure, scripts, and code to create Sybase table from Datatrieve domain definition - [with external support]
2. Develop procedure, scripts, and code to extract data from Datatrieve to a convenient ASCII format - [with external support]
3. Develop procedure, scripts, and code to transfer data from the VAX to the Sun - [with external support]
4. Develop procedure, scripts, and code to load data from ASCII files into Sybase tables - [with external support]

Time effort estimate: 2 weeks

Phase 3 . . . . . Move the data

1. Create the Sybase tables
2. Extract the data from Datatrieve
3. Move the data to the Suns
4. Load the data into Sybase

Time effort estimate: 4 week

Phase 4 . . . . . Load the data into Sybase

1. Load harmonics data into the Sybase tables
2. Load flatcoil data into the Sybase tables

Time effort estimate: 3 weeks

Phase 5 . . . . . .Provide Web access to data

3. Define and document requirements - [with external support]
4. Implement

Time effort estimate: 13 weeks

Raw Steeltest Data

Phase 1 . . . . . Identify data to be transferred and destination

1. Identify data files to transfer and their formats - [external support]
2. Define formats of ASCII files to receive data - [with external support]
3. Define directory structure to receive data - [with external support]
4. Document file formats, directory structures - [with external support]

Time effort estimate: 2 weeks

Phase 2 . . . . . Create ASCII files

1. Develop tools to convert binary files to ASCII - [with external support]
2. Convert

Time effort estimate: 3 weeks

Phase 3 . . . . . Move the data

1. Create directories on Unix system
2. Move ASCII files from VAX to Unix system

Time effort estimate: 1 week

Phase 5 . . . . . .Provide Web access to data

1. Define and document requirements - [with external support]
2. Implement

Time effort estimate: 13 weeks

Other documents, reports, procedures, scripts, and code

Phase 1 . . . . . Identify directories to be transferred

1. Identify directories worth preserving - [external support]
2. Decide whether any restructuring of directories is desirable - [with external support]
3. Process any DEC Runoff files that will be transferred - [with external support]

Time effort estimate: 4 weeks

Phase 2 . . . . . Transfer files

1. Create new directory structures as needed
2. Transfer identified files from VAX to Sun

Time effort estimate: 1 weeks

Phase 2 . . . . . Clean up and present

1. Define and document requirements - [with external support]
2. Implement

Time effort estimate: 13 weeks

David Harding
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